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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,083	12/02/2003	Laibin Luo	2267.006	6021

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EXAMINER	
ASINOVSKY, OLGA	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,083	LUO ET AL.	
	Examiner	Art Unit	
	Olga Asinovsky	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-122* is/are pending in the application.

4a) Of the above claim(s) *32-122* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/2/06&6/9/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-31 in the reply filed on 05/01/2006 is acknowledged. Group I includes claims 1-31 as corrected. The species of cyclic (co)monomers is elected without traverse. Claim 1 is generic for any polymerizable (co)monomers.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 7, 10-13, 15, 24, 28 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Straub et al U.S. patent 4,350,791.

Straub discloses a process for producing a block copolymer comprising: (A) a vinylpyrrolidone polymer having terminal hydroxyl groups, and (B) a block polymer formed by polymerization of ethyl 2,6-diisocyanatocaproate. The starting compound is polyvinylpyrrolidone which is formed by polymerization of N-vinyl-2pyrrolidone in the presence of hydrogen peroxide-radical initiator in aqueous solution, col. 2, lines 20-23; however, the organic solvent such as a lower alcohol, dioxane or tetrahydrofuran, or an aromatic solvent can be used, that is readable in the present claims 7, 13 and 15. A lower alcohol such as methanol, ethanol, isopropanol is advantageous to use, col. 2,

lines 40-42. the step of producing a hydroxyl-terminated vinylpyrrolidone polymer is an alcoholic solvent is readable in step (a) in the present claim 1. Depending on the degree of polymerization of vinylpyrrolidone polymer and the molecular weight of the hydroxyl-containing monomer the functional polymerizable monomer such as allyl alcohol or hydroxypropylmethacrylamide can be added, col. 2, lines 63-68 and col. 7, lines 1-3. The allyl alcohol and hydroxypropylmethacrylamide are within the scope of a chain transfer agent to control the molecular weight of N-vinylpyrrolidone polymer, and said chain transfer agent is responsive for producing a PVP-OH polymer. The obtained vinylpyrrolidone polymer is purified, col. 3, lines 30. The step of producing a purified polyvinylpyrridone is readable in the present claim 12. In the second step the obtained vinylpyrrolidone polymer is reacted with alpha,omega-diisocyanato-alkanecarboxylic acid esters, for example, ethyl 2,6-diisicyanatocaproate, col. 3, line 32, in the presence of a conventional catalyst, col. 3, line 64. a catalyst in the present claim 1 can include any catalyst for polymerizable any monomer. The polymerizable monomer for producing a B-block polymer in Straub invention is readable in the present claim 1. example of suitable catalyst such as organic tin compound is readable in the present claim 10. The average molecular weight of the vinylpyrrolidone polymer is preferably within the range from 1,000 to 10,000, col. 3, lines 25-28. The Mw of at least 1,000 is readable in the present claim 24. Straub discloses a diblock copolymer and triblock copolymer based on N-vinylpyrrolidone polymer that is readable in the present claims 28 and 30. The invention as claimed in the present claims 1, 7, 10-13, 15, 24, 28 and 30 is fully anticipated by the disclosure in Straub invention.

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 9, 11-12 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Benz et al U.S. patent 6,756,449.

Benz discloses a block copolymer, wherein an A-block is a PVP-OH terminated polymer produced by radical polymerization (see col. 9, lines 39-40) in the presence of a hydroxyl-terminated chain transfer agent, such as isopropoxyethanol, col. 9, lines 30-42 and claim 65 at column 32. A radical initiator includes azo-bisisobutyronitrile (AIBN) initiator, col. 11, lines 63-64, for the present claims 1 and 9. claimed alcoholic solvent medium is readable for being an isopropoxyethanol. The PVP-OH polymer was precipitated, col. 12, line 16, and purified, for the present claim 12. A B-block polymer can be produced from a variety of polymerizable monomers, col. 6, lines 57-67; col. 7, lines 33-37; and col. 8, lines 1-67. The B-block polymer can be produced using standard techniques, col. 9, lines 46-51. a catalyst in the present claim 1 for (b) step is inherent to any catalyst using standard techniques in Benz invention. The claimed invention in the present claims 1, 9, 11-12 and 28 is fully anticipated by the disclosure in Benz invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Straub et al U.S. Patent 4,350,791 as applied to claims 1, 7, 10-13, 15, 24, 28 and 30 above, and further in view of Sato et al U.S. Patent 4,699,950.

Straub does not disclose a chain transfer agent that is a thiol detivative in the present claim 8.

Sato discloses a chain transfer agent having thiol end group.

It would have been obvious to one of ordinary skill in the art to modify a process for producing a PVP-OH in Straub invention by employing a thiol chain transfer agent as disclosed by Sato invention, since any chain transfer agent works within the same expectation to control a molecular weight of the resulting PVP-OH polymer in the present claim 1.

7. Claims 2-6, 9, 14, 16-23, 25-27, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Straub et al U.S. Patent 4,350,791 as applied to claims 1, 7, 10-13, 15, 24, 28 and 30 above, and further in view of Leroux et al U.S. Patent 6,338,859 or Article "graft copolymer for biomedical applications prepared by free radical polymerization of (poly(L-lactide) macromonomers with vinyl and acrylic monomers" by Jose Luis Equiburu et al., November 1995, cited by applicants; or Article "Novel Amphiphilic Diblock Copolymer of Low molecular weight Poly(N0vinylpyrrolidone)-block-poly (D,L-lactide):Synthesis, Characterization, and Micellization" by Laibin Luo et al ., December 2003, cited by applicants; or Article "Novel

Polymeric Micelles Based on the Amphiphilic Diblock Copolymer Poly(N-vinyl-2-pyrrolidone)-block-poly(D,L-lactide)" by Amina Benahmed et al., September 2000, cited by applicants.

The primary reference Straub does not disclose the claimed cyclic (co)monomer for producing a block polymer that said block polymer is a degradable polyester.

Each of the secondary reference discloses a diblock copolymer having a degradable polyester based on poly(L-lactide) macromonomers and a hydrophilic PVP-OH block polymer. It would have been obvious to one of ordinary skill in the art to substitute a block polymer formed by polymerization of ethyl 2,6-diisocyanatocaproate in Straub invention with a degradable polyester based on poly(L-lactide) macromonomer as teaching in each of the secondary references for the purposes for obtaining the claimed requirement and since any polymerizable monomers for producing a hydrophobic block are readable in the present claim 1. The B-block polymer in each cited reference invention works within the same expectation for producing an amphiphilic block copolymer. There is no showing of unexpected results derived from said replacement.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.A.

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